

REMARKS/DISCUSSION OF ISSUES

The Examiner's acceptance of the drawings and acknowledgement of the claim for priority and receipt of the certified copies of priority documents is noted with appreciation.

Claims 1-15 and 20-22 are pending in the application. Claims 1, 3-15 and 20-22 are rejected. Claim 2 is objected to.

Claims 1-5 and 20-22

Claims 1-5 and 20-22 are rejected under 35 USC 112, second paragraph, for use of the phrases 'such as', 'for instance', 'close to', 'aspect ratio' and 'with aspect ratio greater than 3 or even 4' in claim 1.

Claim 1 is currently amended to delete the phrases 'such as' and 'for instance'. The phrase 'or even 4' was deleted by the prior amendment.

Regarding the term 'close to' which defines the location of the salt pool as being 'close to the top of the discharge chamber', the specification explains that a salt pool P at the bottom of the discharge chamber as shown in Fig. 1 results in an unacceptable particle distribution in the discharge vessel when the lamp is operated in the vertical orientation, as shown in Fig. 4.

On the other hand, when the salt pool is close to the top of the chamber as shown in Fig. 5, an acceptable particle distribution results, as shown in Fig. 6. As explained at page 8, lines 14 and 15 of the specification, the particle concentration increases with increasing distance from the salt pool. In both Figs. 4 and 6, the increase in particle

concentration begins at the electrode (lower electrode 7 and upper electrode 6, respectively).

Thus, the term 'close to the top' clearly means anywhere within the space from the top of the chamber to the upper electrode 6, and having the height PBD_u as shown in Fig. 5. Thus, the term is definite in its meaning.

The term 'aspect ratio' is defined on page 2, line 3 and page 3, lines 27-30 of the specification as the ratio of the length $L1$ to the diameter $D1$ of the discharge chamber. Thus, this term is also definite in its meaning.

The Examiner has rejected this argument because the definition is not in the claims. However, it is well-settled that the meaning of terms used in the claims may be defined in the specification, and it is not necessary to repeat the definitions in the claims.

Accordingly, the rejection under 35 USC 112, second paragraph, should be withdrawn.

Claims 1 and 2

Claims 1 and 2 are rejected under 35 USC 102(b) as being anticipated by Graham (US patent 5,083,059).

Graham discloses a metal halide lamp characterized by means for heat management within the arc chamber. Specifically, Graham discloses an electrode structure having a relatively small diameter lead wire 34 and a larger diameter post portion 36 which has a greater surface area and thus greater heat conducting properties, so that the salt pool 98 resulting from excess salts in the discharge chamber tends to collect adjacent to the lead wire 34 (Fig. 3), rather than condensing and crystallizing further out on the walls of the envelope, and

causing objectionable flecks to appear in objects illuminated by the lamp (col. 1, lines 33-36).

Graham does not teach or suggest anything regarding a heat management structure which would result in the salt pool and/or the cold spot being near the top of the discharge chamber during lamp operation in a vertical orientation.

Graham does show the arc tube in a vertical orientation in the figures. However, he does not show the salt pool 98 near the top of the discharge chamber, but rather shows the salt pool near the bottom of the chamber (Fig. 3).

The Examiner has argued that the cold spot would inherently be at the top of the chamber. However, this argument is invalid for the reasons already presented above with respect to the location of the salt pool.

In his Final Office action, the Examiner has argued that Fig. 3 of Graham shows the salt pool close to the top of the chamber, since 'close to' is a relative term.

However, the meaning of the terms used in Applicant's claims is determined first by referring to Applicant's specification. As already pointed out above, Applicant's specification makes clear that 'close to the top' means anywhere in the space from the upper electrode 6 to the top of the chamber.

Moreover, 'close to the top' cannot not mean the same as 'near the bottom', since it would result in unwanted particle distribution in the chamber, as demonstrated by Figs. 1 and 4 and the accompanying description of Applicant's specification.

Accordingly, the rejection is in error and should be withdrawn.

Claims 1 and 3

Claims 1 and 3 are rejected under 35 USC 102(e) as being anticipated by Alderman (US patent 6,844,676).

Alderman discloses an HID lamp with a frame wire structure which cancels the magnetic field in the vicinity of the arc tube, thus preventing arc bending and consequent heating of the arc tube surface near the bent arc, regardless of the orientation of the lamp in the fixture and regardless of the relative position of the frame wire to the arc tube. (See, e.g., col. 4, lines 3-8).

Alderman teaches nothing regarding heat management to influence the location of the cold spot. Alderman's frame wire structure is designed to neutralize the magnetic forces which would otherwise result in bending of the arc and heating of the side wall of the arc tube. Thus, Alderman is concerned with reducing asymmetric heating of the sidewall of the arc tube, not with heat management to influence the location of the cold spot, and specifically not with heat management to reduce heating of the ceiling of the arc tube by the arc.

Accordingly, the rejection is in error and should be withdrawn.

Claims 4, 5, 20 and 21

Claims 4, 5, 20 and 21 are rejected under 35 USC 103(a) as being unpatentable over Graham in view of Kawashima (US patent 6,294,870).

Kawashima discloses a high pressure discharge lamp, in which the lower discharge electrode (cathode 22) is mounted closer to the lower end of the discharge chamber than the upper discharge electrode (anode 23) is mounted to the upper end of the discharge chamber.

However, claim 4 is patentable by virtue of its dependency on claim 3, which is patentable for the reasons already advanced above.

Regarding claim 5, neither Graham nor Kawashima teach or suggest the lower electrode has a point-to-bottom distance within the range of 0-5 mm.

Regarding claim 20, neither Graham nor Kawashima teach or suggest additional heat generating means close to one end of the discharge chamber.

Regarding claim 21, neither Graham nor Kawashima teach or suggest additional heat generating means in the form of a radiation coil.

Accordingly, the rejection of claims 4, 5, 20 and 21 over Graham in view of Kawashima is in error, and should be withdrawn.

Claim 22

Claim 22 is rejected under 35 USC 103(a) as being unpatentable over Graham in view of Liebe (US patent 4,621,216).

Liebe discloses a high pressure discharge lamp with a screening body (43) extending with a constant cross-section from a tubular lead-through member (40) to the end of an emitter-containing element (42) facing the discharge path. Thus, an improved temperature control is obtained within the discharge envelope (3) during operation of the lamp.


Liebe discloses in Fig. 1 power supply leads 8 and 9, but does not teach or suggest that these or any other power supply means are connected to emitter-containing element (42).

Accordingly, the rejection of claim 22 over Graham in view

of Kawashima is in error, and should be withdrawn.

Accordingly, Applicant respectfully requests that the Examiner withdraw the objections and rejections of record, allow all the pending claims, and find the application to be otherwise in condition for allowance.

Respectfully submitted,

A handwritten signature in cursive script, reading "John C. Fox".

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